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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/799,318

03/12/2004

Randy L. Hoffman

200315719-1

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

PIZARRO CRESPO, MARCOS D

ART UNIT

PAPER NUMBER

2814

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/799,318	Applicant(s) HOFFMAN ET AL.	
	Examiner Marcos D. Pizarro-Crespo	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-79 is/are pending in the application.
- 4a) Of the above claim(s) 23-55 and 66-69 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 10-12, 17, 18, 21, 22, 56, 61, 62, 65, 70, 75 and 76 is/are rejected.
- 7) ☒ Claim(s) 2-4, 8, 9, 14-16, 19, 20, 57-60, 63, 64, 71-74 and 77-79 is/are objected to.
- 8) ☒ Claim(s) 1-12 and 14-79 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/12/2004, 3/3/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 200315719-1

Filing Date: 3/12/2004

Claimed Foreign Priority Date: none

Applicant(s): Hoffman et al.

Examiner: Marcos D. Pizarro-Crespo

DETAILED ACTION

This Office action responds to the election/amendment filed on 12/21/2006.

Election/Restrictions

1. Applicant's election with traverse of species 1, fig. 1A, reading on claims 1-12, 14-22, 56-65, and 70-79 is acknowledged. Claims 23-55 and 66-69 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.
2. The traversal is on the ground that examining all species would not pose a serious burden on the examiner. This is not found persuasive. In the restriction requirement, the examiner set forth that the application contained six different species. Each species includes mutually exclusive characteristics that distinguish it from the others. That is, the unpatentability of one of the species would not necessarily imply the unpatentability of the other species.
3. Besides stating that searching all species would not pose a serious burden on the examiner, the applicants have failed to advance reasons leading to the conclusion that the species claimed are considered clearly unpatentable over each other.

4. As the examiner indicated, the species are independent or distinct because they do not overlap in scope and are not obvious variants of each other making each species patentably distinct from the others. Since each of the species belongs to a different subject of inventive effort, they will require separately searching for each of their mutually exclusive characteristics.

5. For all of the above reasons, the requirement is still deemed proper and is therefore, made FINAL.

Acknowledgment

6. The amendment, filed on 12/21/2006, responding to the Office action mailed on 11/20/2006, has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 1-12 and 14-79.

Specification

7. The disclosure is objected to because of the following informalities: The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

8. Appropriate correction is required.

Claims Rejection

9. Initially, and with respect to claims 56-65, note that a "product by process" claim is directed to the product *per se*, no matter how actually made. See *In re Thorpe*, 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which makes it clear

that it is the final product *per se* which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that the applicants have the burden of proof in such cases, as the above case law makes clear.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2814

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 6, 7, 10-12, 17, 18, 21, 22, 56, 61, 62, 65, 70, 75, and 76 are rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103 (a) as obvious over Carcia (US7067843).

14. Regarding claims 1, 12, 56, and 70 Carcia shows (see, e.g., fig. 3) a semiconductor device comprising:

- ✓ A drain electrode
- ✓ A source electrode
- ✓ A channel contacting the drain and source electrodes
- ✓ A gate electrode
- ✓ A gate dielectric positioned between the gate electrode and the channel

wherein the channel includes a first binary oxide and a second binary oxide selected from the group of CdO, SrO, CaO, and MgO (see, e.g., col.1/ll.53-55).

15. Regarding claims 6, 17, 61, and 75, Carcia shows the channel includes the first binary oxide and the second binary oxide selected from the within one of the first group of CdO, SrO, CaO, and MgO and a second group of In_2O_3 and Ga_2O_3 (see, e.g., col.1/II.53-55).

16. Regarding claims 7, 18, 62, and 76, Carcia shows the channel includes the first binary oxide and the second binary oxide selected from within one of the first group of CdO, SrO, CaO, and MgO, the second group of In_2O_3 and Ga_2O_3 , and a third group of SnO_2 , GeO_2 , PbO_2 , and TiO_2 (see, e.g., col.1/II.53-55).

17. Regarding claims 10 and 21, Carcia shows the channel includes one of an amorphous form, a single-phase crystalline form, and mixed-phase crystalline form (see, e.g., col.3/II.23).

18. Regarding claims 11 and 22, Carcia shows at least one of the drain electrode, the source electrode, the channel, the gate electrode and the gate dielectric is substantially transparent (see, e.g., col.1/II.53-55 and col.2/II.20).

19. Regarding claim 56, it is noted that Carcia shows all aspects of the semiconductor device according to the claimed invention (see, e.g., paragraph 14 above) and that the method of forming the device by providing a precursor composition, vaporizing the precursor, and depositing the channel from the vaporized precursor, are intermediate steps that do not affect the structure of the final device.

20. As to the grounds of rejection under section 103, see MPEP § 2113, which discusses the handling of "product by process" claims and recommends the alternative (§ 102/ § 103) grounds of rejection.

Allowable Subject Matter

21. Claims 2-5, 8, 9, 14-16, 19, 20, 57-60, 63, 64, 71-74, and 77-79 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

22. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(571) 272-1716** and between the hours of 10:00 AM to 8:30 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (571) 272-1705.

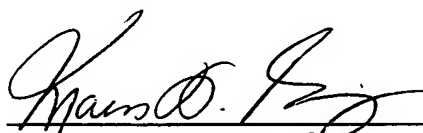
24. Any inquiry of a general nature or relating to the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Art Unit: 2814

Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

25. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/76, 103, 613, E33.037	3/19/2007
Other Documentation:	
Electronic Database(s): EAST (USPAT, EPO, JPO)	3/19/2007



Marcos D. Pizarro-Crespo

Primary Examiner

Art Unit 2814

571-272-1716

marcos.pizarro@uspto.gov

MDP/mdp
March 8, 2007